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ABSTRACT

Books, articles, and theses are included in this annotated bibliography on mastery learning. Approximately 100 citations are included covering the period from 1969 to 1979. (DS)

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No. 69

MASTERY LEARNING

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Mastery Learning

This bibliography lists material appearing on this topic during the past ten years. In so far as possible the entries are annotated.

Sources consulted include the British Education Index (the Library Association), the Canadian Education Index (CEA), Canadian Books in Print Subject Guide (University of Toronto), the Current Index to Journals in Education (CCM), the Directory of Education Studies in Canada (CEA), Educational Administration Abstracts (Univ. Council for Ed. Admin.), Onteris (Ont. Ministry of Ed.), Resources in Education (ERIC), and the Subject Guide to Books in Print (Bowker).

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Geraldine Channon Gilliss
Director
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A. Books

- **1. Anderson, Lorin W. Major Assumptions of Mastery Learning. Paper presented at annual meeting of Southeast Psychological Association (Atlanta, March, 1975). 1975. 10 p. Available ERIC. ED 150 172.

Mastery learning can be described as a set of group-based, individualized, teaching and learning strategies based on the premise that virtually all students can and will, in time, learn what the school has to teach. Inherent in this description are assumptions concerning the nature of schools, classroom instruction, and learners. According to the author, in mastery learning, both the teacher and learner are responsible for the desired learning. Moreover, differences in learning among individuals are, in fact, differences in the amount of time it takes them to learn. This amount of time is based upon three factors: his or her previous learning, his or her interest or confidence in learning the skill, and the quality of the instruction. Schooling is a purposeful activity, which should develop talent rather than select and categorize it. Instructional grouping practices often violate mastery learning's assumptions about individual students.

- **2. Bassett, Ronald E., and Robert J. Kibler. Effect of Training in the Use of Behavioral Objectives on Student Performance in a Mastery Learning Course in Speech Communication. Paper presented at annual meeting of the International Communication Association (New Orleans, April, 1974). 1974. 10 p. Available ERIC. ED 094 426.

The purposes of this study are to develop a valid procedure for teaching students to use behavioral objectives and to determine minimal levels of competence in using objectives. It was hypothesized that when objectives are provided for a unit of instruction, subjects trained to use objectives will score significantly higher on an examination consisting of items matched to the objectives than subjects not trained. The subjects were 159 undergraduate students enrolled in a survey course of human communication theory at Florida State University. The hypothesis was supported by the data, and implications for future research and classroom application are noted.

- **3. Besel, Ronald. Mastery-Learning Decision Variables. Los Alamitos, Calif.: Southwest Regional Laboratory for Educational Research and Development, 1971. 24 p. Available ERIC. ED 111 845.

The Mastery-Learning test model is extended. Methods for estimating prior probabilities are described. The use of an adjustment matrix to transform a probability of mastery measure and empirical methods for estimating adjustment matrix parameters are derived. Adjustment matrices are interpreted as indicators of instructional effectiveness and as evidence of the existence of learning hierarchies. Two decision variables are considered: probability of mastery for an individual and proportion in mastery for an instructional group. Discussion of the reliability, complexity, and interpretability of these decision variables and comparison with decision variables for other test models is also included.

- **4. Besel, Ronald. Using Group Performance to Interpret Individual Responses to Criterion-Referenced Tests. Paper presented at annual meeting of American Educational Research Association (New Orleans, Feb-March, 1973). 1973. 10 p. Available ERIC. ED 076 658.

The contention that interpretation of a student's performance on a criterion referenced test should be independent of the performance of his classmates is challenged. The Mastery Learning Test Model, which was developed for analyzing criterion referenced test data, is described. An estimate of the proportion of students in an instructional group which has achieved the referent objective is usable as a prior probability in interpreting individual responses. Considering instructional group performance enhances estimates of individual performance. Correlational data from a set of test items and a representative population of students are used to estimate the required item parameters.

5. Block, J.H. Mastery Learning. New York: Holt, Rinehart and Winston, 1971.

- *6. Block, James H., ed. Schools, Society, and Mastery Learning. New York: Holt, Rinehart and Winston, 1974. 148 p. ED 093 835. Not available ERIC.

This book is a collection of essays on mastery learning, which is defined as an instructional philosophy that asserts that under appropriate instructional conditions virtually all, rather than some, students can learn

most of what they are taught. The articles in this book are based on a symposium. Social scientists were contacted and asked to respond to the following question from the standpoint of their particular discipline: "If mastery learning could be successfully implemented, then what would be the implications for the school and society?"

- **7. Blohm, Paul Jeffrey. Effects of Skill-Based Instruction and Skill Mastery Testing on General Reading Comprehension of Tenth Grade Poor Comprehenders. Madison: Wisconsin University, Research and Development Center for Cognitive Learning, 1978. 336 p. Available ERIC. ED 153 187.

Three treatment groups were used to examine the effects on general reading comprehension of teaching and testing four subskills related to the identification of the main idea in prose materials. Subjects were 157 tenth-grade students. Besides a control group, two experimental approaches were used, consisting of subjects who were both taught four main idea subskills and also tested for mastery of them, and subjects who were only tested for mastery of these subskills. The effects of these approaches were measured in terms of subjects' general reading comprehension performances on a posttest and delayed posttest. The results show that a combination of teaching-and-testing main idea subskills does result in a sustained positive effect on general reading comprehension; furthermore, teaching-and-testing masters tend to retain their improved performance while the testing-only masters do not. Eight appendixes provide technical information and sample materials used in the study.

- *8. Bloom, Benjamin S. Human Characteristics and School Learning. New York: McGraw-Hill, 1976. 284 p.

A major restatement of the author's theory that "what any person in the world can learn, almost all persons in the world can learn if provided with appropriate prior and current conditions of learning". This time, however, the theory is organized into a well-defined framework and supported by an impressive amount of research.

- **9. Bloom, Benjamin S. Learning for Mastery. Durham NC: Regional Education Laboratory for the Carolinas and Virginia, 1968. 12 p. Available ERIC. ED 053 419.

Most students, perhaps over 90 percent, can master what teachers have to teach them, and it is the task of instruction to find the means which will enable students to master the subject under consideration. A basic task is to determine what is meant by mastery of the subject and to search for methods and materials

which will enable the largest proportion of students to attain such mastery. That is, the basic task in education is to find strategies which will take individual differences into consideration but in such a way as to promote the fullest development of the individual. The thesis of this paper is that, to promote mastery learning, 5 variables must be dealt with effectively: (1) aptitude for kinds of learning, viewed as the amount of time required by the learner to attain mastery of the task; (2) quality of instruction, viewed in terms of its approaching the optimum for a learner; (3) ability to understand instruction, i.e., to understand the nature of the task and the procedures to follow; (4) perseverance, the amount of time one is willing to spend in learning; and (5) time allowed for learning, the key to mastery.

- **10. Burrows, Charles K., and James R. Okey. The Effects of a Mastery Learning Strategy on Achievement. Paper presented at annual meeting of American Educational Research Association (Washington D.C., March-April, 1975). 1975. 13 p. Available ERIC. ED 109 240.

Bloom has argued that most students, not just a few, should be able to do top quality school work if given appropriate instruction. Mastery learning, which includes frequent diagnostic testing followed by remedial instruction, has been proposed as an effective strategy for increasing pupil achievement. In this study, teachers used a mastery learning strategy with elementary school students in a geometry unit. An analysis of the data indicated that low mathematics aptitude fourth graders taught using a mastery strategy achieved at as high a level as high aptitude fifth graders taught in a more conventional manner.

- **11. Carmichael, Dennis. Mastery Learning: Its Administrative Implications. Paper presented at annual meeting of the American Educational Research Association (New Orleans, Feb-March, 1973). 1973. 13 p. Available ERIC. ED 075 946.

This paper is based on two premises. The first is that there are five conditions of readiness which determine the success or failure of educational innovations such as that of mastery learning. These are: (1) The desire to change the status quo, (2) a systematic management process, (3) effective leadership, (4) a receptive teaching staff, and (5) financial resourcefulness. The second premise is that instructional innovations, including mastery learning, will be successfully implemented and will persist only when the teaching staff, administration, board, students, and patrons work together to (1) assess student learning

needs; (2) analyze existing educational goals, objectives, and instructional programs; (3) derive new goals, objectives, and programs based on needs assessment and problem analysis; (4) implement and monitor revised programs, including instructional innovations; and (5) evaluate the outcomes of instructional innovations. The assertion is also made that the lack of or the weakening of any of these conditions will lessen the chances of successful and lasting educational innovation.

12. Carroll, J.B. "Problems of Measurement Related to the Concept of Learning for Mastery" in Evaluation, A Conference for District Superintendents, Harrison Hot Springs, B.C., Jan'70. Victoria: University of Victoria, Faculty of Education, 1970. 74 p.

- **13. Coleman, Phoebe B. Teaching Fundamentals of Writing: A Modest Proposal. Paper presented at annual meeting of Conference on College Composition and Communication (Kansas City, March-April 1977). 1977. 16 p. Available ERIC. ED 144 085.

This paper discusses the teaching approaches used in a basic composition course designed for educationally disadvantaged students. The course integrates three approaches: mastery teaching and learning, James Moffett's student-centered naturalistic curriculum; and Ken Macrorie's Third Way, which combines freedom and discipline in a writing workshop. These approaches use a variety of methods and materials especially helpful to educationally disadvantaged students. Two attached handouts provide an outline of the course and a sample hierarchy of learning skills and their attendant learning activities.

- **14. Collins, Kenneth. An Investigation of the Variables of Bloom's Mastery Learning Model for Teaching Mathematics. Paper presented at the annual meeting of the American Educational Research Association, Chicago, 1972. 20 p. Available ERIC. ED 065 596.

The purposes of this study were to examine and evaluate the importance of three variables of Bloom's mastery learning model. The variables studied were specification of objectives, use of diagnostic-progress tests, and use of alternate resources. The study used four seventh grade and four eighth grade classes; each grade classes were pretested each semester on course objectives. There was no significant difference among the classes at the .25 level. Each class took chapter, unit, and semester (posttest) exams based on the objectives.

- **15. Cross, K. Patricia. Commitments to Improve the Quality of Learning. Paper presented at the National Forum of the College Board (New York, October 1976). 1976. 12 p. Available ERIC. MF only. ED 142 110.

The new emphases on the quality of learning appears to offer some potential solutions to two current problems: the twin problems of quality and equality in education. Traditional group-oriented education has emphasized equality in the amount of time spent at the learning task and inequality in the amount learned; individual differences are recognized in grading. Individualized learning, and especially mastery learning, reverses the emphasis, stressing equality in the amount learned and inequality in the time spent; everyone must learn to the same level of achievement. If certain scholars are correct in their assertion that anyone can learn the basic curriculum if given enough time and appropriate help, we have a breakthrough that permits us to conceptualize education in new ways, moving beyond access for all toward learning for each.

- **16. Deaton, William L., et al. Grade Expectations Within a Mastery Learning Strategy. Paper presented at annual meeting of American Educational Research Association (San Francisco, April, 1976). 1976. 16 p. Available ERIC. ED 126 105.

Final course grade expectations of students in two models of instruction (mastery and nonmastery) were investigated. The intent of the study was to examine expectations between groups and to analyze within-mastery effects on self-perception of performance. Using preinstruction grade expectation, postinstruction grade expectation, Grade Point Average (GPA), and number of formative exams taken as independent variables and final exam scores as the criterion, relationships were obtained through stepwise multiple correlation analysis. Results support the validity of the feedback mechanisms within the mastery strategy in relation to a more accurate self-assessment of knowledge level and expected grade from pre- to postinstruction.

- **17. Evans, Richard M., and Alvin J. Surkan. Effect of Computer-Delivered Testing on Achievement in a Mastery Learning Course of Study with Partial Scoring and Variable Pacing. Paper presented at the Conference on Computers in the Undergraduate Curricula (East Lansing, June 1977). 1977. 8 p. Available ERIC. ED 156 214.

The recent arrival of portable computer systems with high-level language interpreters now makes it practical

to rapidly develop complex testing and scoring programs. These programs permit undergraduates access, at arbitrary times, to testing as an integral part of a mastery learning strategy. Effects of introducing the computer were studied by using, for control, data from students enrolled in the same undergraduate educational psychology course during the previous year. Results show that computer organized testing allowed students to take more replicates of each examination. Consequently there was, for three out of five examinations, an increase in the values of a measure of achievement based on the highest grade attained and time required before taking the final replicate desired for each examination of the course.

- *18. Frazier, Alexander. Adventuring, Mastering, Associating: New Strategies for Teaching Children. Washington, D.C.: Association for Supervision and Curriculum Development, 1976. 138 p.

The author attempts to set up an "equal rights curriculum for all children". The organizing elements of his proposed curriculum are adventuring, that is heightening learning awareness in the child by introducing him to new stimuli; mastering, that is helping him to take in and organize all that he is being exposed to; and associating, or learning as a group activity.

- **19. Grabe, Mark, et al. Evaluation of the Multidimensional Affective Consequences of Traditional and Mastery Instruction. Paper presented at annual meeting of the Iowa Academy of Science (April 1975). 1978. 12 p. Available ERIC. ED 152 521.

This document reviews the Phase Achievement System (PAS), a mastery-oriented instructional method, being utilized to teach biology at Iowa State University. The system is designed to reduce student failures from competitive, nonrepeatable examinations and presents course content material in a modularized form. A comparison with traditional lecture instruction is made.

- **20. Hapkiewicz, Walter G. Mastery Learning Options in Teaching Educational Psychology. Paper presented at the annual meeting of the American Educational Research Association, Chicago, 1972. 12 p. Available ERIC. ED 060 065.

This paper examines a program instructing pre-service and practicing teachers in educational psychology. It is concluded that the program, which utilizes a mastery approach, produces significantly better results than does the traditional method.

- **21. Jones, Emmett L., et al. Mastery Learning: A Strategy for Academic Success in a Community College. Los Angeles: U.C.L.A. (ERIC Clearinghouse for Junior College Information), 1975. 54 p. Available ERIC. ED 115 315.

This paper describes the implementation of a Mastery Learning approach to instruction at Olive-Harvey College (OHC) in Chicago, and outlines planning and operating procedures for its implementation at other institutions. This approach was attempted at OHC as a response to the decreasing abilities of entering students, after many other innovative techniques had been tried with limited success. The Mastery Learning strategy rested on a foundation of fundamental propositions about learning, and seemed specially in accord with the community college's philosophic emphasis on instruction. The paper describes the development of course objectives, establishment of achievement criteria, definition of learning units and identification of learning elements, and the construction of diagnostic tests and prescriptive remedial materials. In general, the Mastery Learning approach has been judged successful at OHC; although some problems have been encountered, a greater level of achievement has been attained by students in Mastery Learning classes.

- **22. Katims, Michael, et al. The Chicago Mastery Learning Reading Program: An Interim Evaluation. Paper presented at annual meeting of the American Educational Research Association (New York, April 1977). 30 p. Available ERIC. ED 137 737.

This paper reports the interim results of a quasi-experimental evaluation of the Chicago Mastery Learning Reading Program, an application of Bloom's mastery-learning instructional model to the elementary reading curriculum. Two approximately equivalent classrooms were selected from each of 10 inner-city schools with minority pupils who were below grade level in reading. In some cases, classrooms were randomly assigned to treatment; in the others, teachers and principals made the assignment. The reading comprehension subtest of the Iowa Tests of Basic Skills was used as a pretest and was repeated in January using a different form. Although the control group scored significantly higher on the pretest, a variety of analyses indicated greater gains for the experimental groups. Spring results are expected to confirm the superiority of the experimental program.

23. Kim, Hogwon. Experimentation in Education; Mastery Learning in Korea. Paper presented at the International Institute for Educational Planning Seminar (Sept-Oct, 1974). 1975. 15 p. ED 132 155. Not available ERIC. Available from the Institute.

Large classroom population in Korean schools has necessitated the development of an educational model which (1) is effective with a large heterogeneous group of students; (2) does not require an overload on classroom teachers; (3) does not presuppose massive teacher retraining; and (4) is adaptable to a wide range of existing school situations. An instructional model, the Mastery Learning Project, was devised with the following components: (1) diagnosis of learning deficiencies; (2) compensatory programs; (3) presentation of learning objectives; (4) teacher instruction with emphasis on charts and audiovisual materials; (5) formative tests; (6) remedial programs for those failing in mastery; (7) enrichment programs for those attaining mastery; (8) cooperative learning activities; and (9) summative tests. Two studies involving 272 seventh-grade students (half control, half experimental) showed a high rate of success for the experimental groups.

- **24. Levin, Henry M. The Economic Implications of Mastery Learning. Paper presented at annual meeting of the American Educational Research Association (New Orleans, Feb-March, 1973). 25 p. Available ERIC. ED 078 093.

An internal/external efficiency evaluation on the economic implications of mastery learning is presented. Two important aspects of mastery learning are: (1) its intrinsic worth regardless of economic benefits, and (2) the necessary changes in the social and economic structure that will make the mastery learning approach increasingly functional. It is pointed out that the mastery learning approach has a very humane quality in its concern with equalizing outcomes. There are important societal changes in the offing that will increase the functionality of this approach. It is concluded that the economic importance of the mastery-learning strategy will rise substantially over the foreseeable future.

- **25. Miree, Lucia F., and Robert J. Kibler. The Adaptation of Formative Evaluation Procedures from Mastery Learning to Nonmastery Learning Systems or "You Really Gotta Wanna". Paper presented at annual meeting of American Educational Research Association (New York, April 1977). 1977. 18 p. Available ERIC. ED 150 152.

While formative evaluation is widely used in the field of instruction, the procedures for adapting formative

evaluation from a mastery to a traditional, or nonmastery, learning system have not been clearly specified. This paper defines formative evaluation and its related functions following Bloom's model, describes the myths of applying Bloom's formative evaluation to the conventional instructional setting, and discusses procedures for adapting formative evaluation procedures from the mastery model to the nonmastery system. The implications of this adaptation process are also identified.

- **26. Mueller, Daniel J. Mastery Learning: Partly Boon, Partly Boondoggle. Bloomington: Indiana University, Division of Teacher Education, 1975. 15 p. Available ERIC. ED 128 327.

Educational institutions have at least two major functions: education and certification of competency. This paper examines the educational strengths and limitations of the mastery learning instruction model with respect to fulfilling these functions. The components of the mastery model are contrasted with components of other instructional models, and their relative advantages and disadvantages discussed in the nine sections of the paper.

- **27. Naumes, Mike. The Keller Plan: A Method for Putting the Responsibility of Learning Upon the Student. Cincinnati: Cincinnati University, Ohio Institute for Research and Training in Higher Education, n.d. 7 p. Available ERIC. ED 138 545.

The Keller Plan is a method of structuring a course so as to achieve high efficiency in terms of student learning. This method of teaching is sometimes referred to as Personalized System of Instruction (PSI). The materials of a course of study are divided into several sequential units. Study guides are provided that include an introduction to each unit, a statement of specific objectives to be obtained, a suggestion for optional study procedures, and a listing of potential study questions. The student proceeds at his own pace. Periodic testing indicates progress and mastery of the unit material, and results of tests determine when a student is ready to advance to another unit. A proctoring system is used during quizzes to supervise and help the students. Emphasis is placed upon completely mastering each unit before proceeding further in the course.

- **28. Novick, Melvin R., and Charles Lewis. Prescribing Test Length for Criterion-Referenced Measurement. Iowa City: American College Testing Program, 1974. 35 p. Available ERIC. ED 152 830.

In a program of Individually Prescribed Instruction (IPI), where a student's progress through each level of a program of study is governed by his performance on a test dealing with individual behavioral objectives, there is considerable value in keeping the number of items on each test at a minimum. The specified test length for each objective must, however, be adequate to provide sufficient information regarding the student's degree of mastery of the behavioral objective being tested. Just what the minimum acceptable length will be depends on the manner in which test information is used to make decisions about individual students, the level of functioning required for defining mastery of an objective, the relative losses incurred in making false positive and false negative decisions, the background information available on the student and on the instructional process, and the premium on testing time within the instructional process.

- **29. Okey, James R. The Consequences of Training Teachers to Use Mastery Learning. Paper presented at annual meeting of American Educational Research Association (San Francisco, April, 1976). 1976. 16 p. Available ERIC. ED 120 169.

The purpose of this project was to produce materials that would foster favorable teacher attitudes toward the philosophy behind mastery learning. One other purpose was to help teachers acquire the skills needed to use mastery learning in their classrooms and to determine the effects on pupils when mastery learning techniques were used. Forty-four teachers and interns from four Indianapolis schools were equally divided into groups according to race and sex. The material developed was a Mastery Teaching module which included an introduction and six sections. A slide/tape accompanied each of the seven parts. An accompanying manual contained objectives, practice exercises; and feedback. The manual also included self-tests with answers for each section, a pre-test on prerequisites, and a project section. Pre- and post-treatment measures were administered to the teachers and interns on both cognitive and affective variables. The results indicated that teachers and interns acquired the mastery teaching skills and used them to the degree that pupils perceived differences in their teaching. Teacher attitudes toward the mastery teaching philosophy were generally positive, and students' attitudes and achievement were favorably altered because of their teachers' use of mastery teaching.

30. O'Reilly, Robert, and Parnell Garland. Paradigm for Evaluation in the High School. Ottawa: University of Ottawa, 1974. 109 p. Document not for sale; available for loan only from regional offices of the Ontario Ministry of Education. ON00141.

The purpose of this study was to demonstrate a model for educational supervisors which attempts to link management theory to learning. The Mastery Learning Model was taught to teachers in 4 eight-hour workshops. 24 classes were experimental and 24 control. Standardized tests and questionnaires were administered.

- **31. Pfaff, Judith, and William H. Schmidt. Mastery Learning Strategies Applied to the Teaching of Statistics. Paper presented at the annual meeting of American Educational Research Association (Chicago, April 1974). 1974. 17 p. Available ERIC. ED 097 357.

The purpose of this study is to describe and compare the performances of students in a beginning course in educational statistics. Modified mastery learning strategies such as the use of a pretest, diagnostic tests, parallel mid-terms, and an extended time allowance to master the content were employed during the course. Data was available on 359 graduate students over a 2-year period. The results of this nonexperimental study support the usefulness of the pretest; show that grades improve when more diagnostic tests are taken; scores almost always increase with the second parallel midterm; increased time is accompanied by decreased performance; masters students always do better than doctoral students; and the classes in which the mastery strategies were used were about the same overall as previous classes.

- **32. Rice, Marion J. Variables in Mastery Learning: Is a Mastery Learning Model Appropriate to the Social Studies? Paper presented at annual meeting of American Educational Research Association (San Francisco, April, 1976). 1976. 19 p. Available ERIC. MF only. ED 124 463.

Designed as an introduction to a symposium on the appropriateness of mastery learning as a technique of social studies instruction, this paper reviews research on the variables related to mastery learning in order to provide a basis for systematic symposium discussion. Brief research reviews are included on the following variables: materials, instructional procedures, criteria for mastery, teacher characteristics, pupil characteristics, classroom environment, duration of mastery sequence, and management problems. Appendix A

contains a more extensive list of variables for further discussion, and Appendix B indicates a hypothetical and cumulative research sequence which is necessary to establish a body of reliable knowledge about mastery learning. Brief reviews of the four research studies which were presented at the symposium are included in Appendix C. A bibliography of related research on mastery learning is also included.

- **33. Riviere, Michael S., and Thomas H. Haladyna. Effects of Learner Variables on Retention and Two Levels of Cognitive Material When Learning for Mastery. Paper presented at annual meeting of American Educational Research Association (Chicago, April, 1974). 1974. 20 p. Available ERIC. MF only. ED 100 976.

Several tenets of mastery learning were examined in this study in the context of college level instruction. When students learn for mastery: (1) retention test scores should exhibit small variability and should be unrelated to aptitude; (2) test items which are classified into high and low cognitive behavior subscales should be unrelated to aptitude. The first tenet was partially supported as the relationship between retention and aptitude was uniformly low across three units of instruction, and variability of retention tests was not restricted. No relationship between performance on both high and low cognitive subscales and aptitude were observed.

34. Ryan, Doris W. Mastery Learning: Theory, Research, and Implementation. Toronto: OISE, 1979. 155 p.

A resource book for teachers and administrators who want to understand the system of mastery learning strategy and its implementation requirements. The study discusses the theoretical bases for the strategy, summarizes the major research studies conducted to test its effectiveness, and presents the opinions and experiences of practitioners in implementation. Two specific implementation efforts -- the Chicago Mastery Learning Reading Program and Pine Tree Hill School's Mastery Learning in Social Studies Project -- are examined in detail.

- **35. Schechtman, Gilbert. Mastery Learning at Olive-Harvey College. Paper presented at annual meeting of the Conference on College Composition (St. Louis, March, 1975). 1975. 7 p. Available ERIC. ED 109 677.

Mastery Learning, a learning strategy which denies the inevitability of the normal grading curve, holds promise in skill-building courses. For a composition course using this strategy, course objectives must first be established and stated behaviorally, after which the course may be broken into learning units, each lasting

perhaps two weeks. At the end of a two-week instruction period, students take a formative or diagnostic test -- one of the defining features of Mastery Learning. Students not passing the test are directed to another defining feature, corrective learning experiences.

- *36. Sharp, John M., and Gregg M. Strasler. The Impact of "Learning for Mastery" Instruction on Classroom Cohesion. Paper presented at annual meeting of American Educational Research Association (New York, April 1977). 1977. 34 p. Available ERIC. ED 137 272.

Weak increases in classroom cohesion of three seventh-grade classes instructed by a mastery learning technique compared to three conventionally instructed classes are demonstrated using block analysis of variance, triadic census (balance theory), and block modelling (role theory) analytic techniques on repeated-measures sociometric rating data.

- **37. Sheldon, M. Stephen, and E.D. Miller. Behavioral Objectives and Mastery Learning Applied to Two Areas of Junior College Instruction. Los Angeles: U.C.L.A., 1973. 90 p. Available ERIC. ED 082 730.

Mastery learning is an approach to learning whereby students are expected to demonstrate competence of one level, or unit, of learning objectives before advancing to the next level. Most junior college instruction is group-paced, with the instructor determining the rate with which units are presented. One compromise between existing instruction and ideal mastery learning techniques is to provide specific supplementary instruction for those students who fail to master a given unit, while maintaining the group pace. The research reported focused on one form of that compromise: the effect of teaching one additional lesson per unit to those students who did not achieve mastery of that unit. Another part of the research examined the effect of providing students with detailed behavioral objectives. The research was conducted in selected English and algebra courses at five community colleges in Southern California.

- **38. Smith, Charles W. Criterion-Referenced Assessment. Paper presented at International Symposium on Educational Testing (The Hague, The Netherlands, July 17, 1973). 1973. Available ERIC. ED 081 843.

The criterion-referenced measure is useful when one is interested in whether an individual possesses particular competencies and when there are no quotas

as to how many possess that skill. It is particularly useful in assessing competence in licensed professions since tasks in these areas must be performed at specifiably high levels of competence. Criterion-referenced assessment is also important to any subject area where future academic success is dependent upon cumulative information or skills, such as in mathematics. Criterion-referenced assessment, along with feedback and remedial procedures, can help teachers realize the goals of mastery learning with their students.

- **39. Smith, Jeffrey K. Perspectives on Mastery Learning and Mastery Testing. Princeton: ERIC Clearinghouse on Tests, Measurement, and Evaluation, 1977. 29 p. Available ERIC. ED 152 813.

Mastery learning is described as a system for providing a unit-by-unit sequence, and arranging that each unit be successfully mastered by each student before they begin the next unit. This process requires mastery tests to control the rate of student progress. The proper setting of score levels to represent mastery is a difficult task. The claim is made that, although group-based mastery learning may often delay the progress of the faster students at first, eventually the general result tends to be more efficient for learning for all students as compared to other group instructional processes. Bibliographical references are appended.

- **40. Statewide Minimum Competencies -- A Force for Quality Education. Newark: Greater Newark Urban Coalition, 1976. 38 p. Available ERIC. ED 130 381.

The major purpose of this paper is to demonstrate that the research evidence on mastery learning theory provides ample assurance that the goal of having virtually all normal children achieve mastery over basic skills in communication and computation set at meaningful levels is attainable. Mastery learning strategies require teachers to decide what they want children to learn and then to teach them, to test them to see what they know, and then to help those who do not know by providing time, methods, and materials suitable to the learning style of the particular child.

- **41. Staton-Spicer, Ann Q. Teaching Public Speaking on a Mastery Learning Basis. Paper presented at annual meeting of the Speech Communication Association (Washington, D.C., December 1977). 1977. 21 p. Available ERIC. ED 150 671.

Mastery learning is a systematic approach to instruction in which students are required to attain specified levels of competence. This paper provides a rationale for using mastery learning in the introductory public speaking course and clarifies the differences between traditional and mastery learning approaches by contrasting their assumptions and applications with regard to public speaking. It then examines four elements involved in designing and implementing a mastery learning approach: (1) writing performance objectives; (2) dividing the course into small units, ordering them, and sequencing the tasks; (3) selecting basic instructional procedures; and (4) developing methods through which students can demonstrate and be evaluated on mastery of the course learning objectives. The paper provides an illustration of one way in which units of study could be formulated and sequenced; sample objectives for each unit proposed are included.

- **42. Strasler, Gregg M., et al. An Evaluation of a State-Wide Mastery Learning Project in Civil Engineering Technology. Paper presented at annual meeting of American Educational Research Association (New York, April 1977). 1977. 31 p. Available ERIC. ED137 367.

Project CIVTEC was conducted through the Columbia, South Carolina State Board for Technical and Comprehensive Education in cooperation with the National Science Foundation and has developed an individualized instructional approach, based on mastery learning, for eleven core curriculum courses in Civil Engineering Technology. The basic format for each course was a combination of written modules forming a linear progression through a series of related objectives. The written material was broadened by a series of alternate media presentations for students having difficulty understanding the concepts presented in the modules. A state-wide evaluation was conducted in the final year of the project comparing the individualized approach with a more traditional lecture-based approach.

- **43. Swanson, David H., and Jon J. Denton. A Comparison of Remediation Systems Affecting Achievement and Retention in Mastery Learning. 1976. 20 p. Available ERIC. ED 131 037.

Data from experiments with high school chemistry students revealed (1) that remediation positively influences cognitive achievement and retention, and (2) recycling,

which introduces alternate materials and activities under teacher direction, provides more optimum learning conditions than repeating the learning activities and reviewing the reading materials previously encountered.

- **44. Taylor, Susan S. The Effects of Mastery, Adaptive Mastery, and Non-Mastery Models on the Learning of a Mathematical Task. Paper presented at annual meeting of American Educational Research Association (Washington, D.C., March-April, 1975). 1975. 48 p. Available ERIC. ED 106 145.

Three learning models (adaptive mastery, typical mastery, and traditional non-mastery learning models) which employed different criteria for terminating computer-based practice in order to determine mastery or non-mastery of arithmetic skills were compared. The efficiency of two different sequencing arrangements (mixed and clustered) of practice items was also examined. All treatments involved the teaching of basic arithmetic skills to seventh-grade students. The adaptive mastery learning model produced the same high level of performance on both the posttest and a delayed retention test as the other two models, but requires less time, fewer practice items, and minimized overpractice. No significant differences were found between the clustered and mixed item arrangements.

- **45. Wildemuth, Barbara, comp. Mastery Learning and Mastery Testing: An Annotated ERIC Bibliography. Princeton: ERIC Clearinghouse on Tests, Measurement, and Evaluation, 1977. 65 p. Available ERIC. ED 138 646.

This 136-item annotated bibliography on mastery learning and mastery testing is the result of a computer search of the ERIC data base in February 1977. All entries are listed alphabetically by author. An abstract or annotation is provided for each entry. A subject index is included reflecting the major emphasis of each citation.

B. Articles

1. Acker, Loren E., and Bram C. Goldwater. Mastery performance or PSI: a goad by any other name. Teaching of Psychology 3:2:91 Ap'76. EJ 138 656.

The authors stress mastery criterion as the most important component of the Personalized System of Instruction (PSI).

2. Adams, E.N. On scoring a mastery learning system control test. Journal of Computer-Based Instruction. 1:2:50-58 Nov'74. EJ 112 928.

The possible application of ideas to control test scoring is discussed.

3. Andersen, Hans O. Science teaching -- a tangled web. Australian Science Teachers Journal 21:3:61-70 Nov'75. EJ 139 857.

Briefly traces the history of science curriculum development in the United States. Explains learning contracts and mastery learning as two techniques for humanizing science instruction. Summarizes the main objectives for science teaching, the rationales, and the claims that must be satisfied.

- *4. Anderson, Lorin W. An empirical investigation of individual differences in time to learn. Journal of Educational Psychology 68:2:226-33 Ap'76. EJ 142 034.

Results show that student differences in time-on-task to learn to criterion are alterable and can be minimized over a sequence of learning units given appropriate adaptive learning strategies.

- *5. Berk, Ronald A. Determination of optimal cutting scores in criterion-referenced measurement. Journal of Experimental Education 45:2:4-9 W'76. EJ 158 154.

Attempts to select empirically the optimal cutting score or criterion level for a test based on response data from validated samples of instructed and uninstructed students. The score maximizes the probability of correct mastery-nonmastery decisions.

- *6. Bippus, Stanley. A new look at competency-based education. NASSP Bulletin 60:402:74-77 O'76. EJ 156 274.

Competency-based educational programs are here to stay. Here the author describes the program under way in his school system.

- *7. Block, James H. Individualized instruction: a mastery learning perspective. Educational Leadership 34:5:337-341 Feb'77. EJ 155 090.

Presents four guidelines for improving individualized instruction, based on the author's experience with the "mastery learning" approach to instruction.

8. Block, James H. Student learning and the setting of mastery performance standards. Educational Horizons 50:4:183-91 Sum'72. EJ 068 622.

Results of a study using "mastery learning", which tested not only the efficacy of the technique but also student attitudes toward the material after attaining "mastery".

- *9. Block, James H. Teachers, teaching, and mastery learning. Today's Education 63:7:30-36 Nov-Dec'73. EJ 087 190.

Outlines the process of mastery learning and the benefits it has for student attitude and achievement.

- *10. Block, James H., and Michael L. Tierney. An exploration of two correction procedures used in mastery learning approaches to instruction. Journal of Educational Psychology 66:6:962-967 Dec'74. EJ 118 385.

The impact of male and female college students' grades, achievement, and attitudes of the respective "correction" procedures used in Bloom- and Keller-type mastery learning strategies was investigated. Findings indicate periodic corrections, using Bloom's strategy, may improve students' ability to apply course material.

11. Bloom, Benjamin S. Favorable learning conditions for all. Teacher 95:3:22-28 Nov'77. EJ 176 800.

Discusses some basic ideas that demonstrate how, under favorable conditions, all students can learn whatever the schools have to teach.

- *12. Bloom, Benjamin S. New views of the learner: implications for instruction and curriculum. Educational Leadership 35:7:563-576 Ap'78. EJ 179 218.

Argues that most students become very similar with regard to learning ability, rate of learning, and motivation for further learning when provided with favorable learning conditions. Discusses the implications of that view for students, teachers and instruction, and school curriculum.

- *13. Brandt, Ronald. On mastery learning: an interview with James H. Block. Educational Leadership 33:8:584-9 My'76. EJ 145 528.

In this interview, James Block explains the model of mastery learning, developed by him and Benjamin Bloom, according to which individual differences in academic ability are lessened by appropriate teaching methods.

14. Caldwell, E.C., et al. Mastery: the essential essential in PSI. Teaching of Psychology 5:2:59-65 Ap'78. EJ 178 564.

Four studies examined the importance of student proctors and mastery performance in Personalized System of Instruction (PSI) programs. Results of the studies indicate that students will generally perform at the required level and that mastery of unit content is the most important element of PSI systems.

- *15. Carlson, John G., and Karl A. Minke. Fixed and ascending criteria for unit mastery learning. Journal of Educational Psychology 67:1:96-101 Feb'75. EJ 118 399.

Mastery criterion manipulation may produce dramatic behavioral effects. Results of a study investigating three undergraduate classes indicate that the 90 percent criterion class was inferior to both the 80 percent and the varied 60-90 percent criterion class on several measures, including degree of accuracy and final grade.

16. Cross, K. Patricia. Mastery learning: the new classroom revolution. AGB Reports 18:4:21-28 J1/Ag'76. EJ 143 152.

A new idea is catching on fast: instead of giving all students the same classroom time and grading A to F, give each the time and the teaching technique he or she needs to master the subject.

- *17. Dolan, Lawrence. The status of mastery learning research and practice. Administrator's Notebook 26:3:1-4 1977/78. EJ 177 618.

Highlights the research available on mastery learning, discusses the problems still existing, develops a prospectus for future research, and reflects on the implications of the available knowledge for the educational administrator.

- *18. Dolly, John R., and Jana H. Meredith. The use of mastery learning as a classroom management model. Educational Technology 17:4:26-29 Ap'77. EJ 166 359.

Weaknesses in Bloom's (1968) model and misinterpretations are described.

- *19. Fehlen, Joan E. Mastery learning techniques in the traditional classroom setting. School Science and Mathematics 76:3:203-206 Mr'76. EJ 136 702.

An investigation of the effectiveness of a mathematics course for preservice elementary teachers showed that the use of mastery learning principles in a traditional classroom setting can be effective.

20. Gains, Charles W. Mastery learning and its implications for remedial teachers. Remedial Ed no.11:25-26,31 '76.

21. Garner, Raymond. Mastery learning: fact or fiction. Agricultural Education Magazine 47:6:123-126 D'74 EJ 105 367.

Is mastery learning an effective strategy in the teaching of vocational agriculture? Instructional Management Problems, the individualized instruction approach, and performance based curriculum are topics investigated in answering this question.

22. Goldwater, B.C., and L.E. Acker. Instructor-paced, mass-testing for mastery performance in an introductory psychology course. Teaching of Psychology 2:4:152-55 Dec'75. EJ 130 296.

Weekly testing coupled with a mastery performance requirement generated higher student performance in an introductory psychology class.

- *23. Hambleton, Ronald K., et al. A comparison of several methods for assessing student mastery in objectives-based instructional programs. Journal of Experimental Education 45:2:57-64 W'76. EJ 158 164.

The relative merits of several methods, Bayesian and classical, for the estimation of student mastery are investigated.

24. Hantula, James. Thanks be to Bokonon. Teacher Educator 12:2:16-18 Aut'76. EJ 155 958.

This anecdote about a visitor from Atlantis compares the new and old approaches in American social studies education.

25. Harlacher, Ervin L. Performance-oriented learning: how to do it. New Directions for Community Colleges 6:1:43-51 Sp'78. EJ 183 908.

Discusses examples of community-based, performance-oriented community college programs, those emphasizing

mastery of identified competencies, rather than grades or degrees. Outlines requirements for developing performance-oriented modules, which include establishing course scope and units of knowledge to be progressively mastered.

- *26. Harvey, Karen, and Lowell Horton. Bloom's "Human Characteristics and School Learning". Phi Delta Kappan 59:3:189-193 Nov'77. EJ 167 839.

Examines Bloom's theories of mastery learning as developed in his book -- "Human Characteristics and School Learning".

27. Hulteen, Curtis. Personalized systems of instruction (PSI) at Black Hawk College, East Campus. Community College Social Science Journal 2:1:35-37 '78. EJ 183 925.

Lists the instructional features of the Personalized System of Instruction (PSI) -- self-pacing, mastery of material, student proctors, motivational devices, stress upon written and spoken work -- and describes their use in an introductory psychology course at Black Hawk College. Points out higher level of achievement and higher dropout rate as significant results.

28. Knight, John M., and Jack R. Nation. Programmed achievement using a within-class control. Research in Higher Education 8:2:145-56 '78. EJ 179 410.

Three groups of college students operated under different contingencies in the same classroom. The Programmed Achievement (PA) condition required students to show 100 percent mastery on 12 chapter quizzes, at the risk of grade loss. Control students took quizzes with no requirement for mastery, and a group of low achievers tried both methods. The PA condition produced significant improvement in low achievers.

29. Marshall, Kim. You can turn around the failing student. Learning 6:2:51,56,138,142-3 Oct'77. EJ 172 729.

By insisting that a student master a skill before progressing to a more complex task, a teacher can help that student build a firm foundation for further learning experiences.

30. Martin, James A. Mastery learning: a model for allied health. Journal of Allied Health 6:3:40-44 Sum'77. EJ 165 455.

This paper reports the methods and philosophy used in developing a mastery learning model at the University

of Missouri-Columbia to insure that allied health students in the physical therapy and occupational therapy programs learn the concepts of anatomy essential to the rest of the curriculum.

31. Mink, Barbara Washburn. Focusing on mastery and individualized instruction. New Directions for Higher Education 5:4:51-64 W'77. EJ 172 111.

Suggestions on how to apply mastery learning concepts to instructing high-risk college students are offered with examples from mathematics provided. Eighty-five specific guidelines from the Personalized Systematic Instruction Inventory (PSII) are included.

- *32. Mueller, Daniel J. Mastery learning: partly boon, partly boondoggle. Teachers College Record 78:1:41-52 S'76. EJ 150 812.

Educational strengths and limitations of the mastery learning instructional model in fulfilling the functions of instruction and student evaluation are examined.

33. Nation, Jack R., and Anthony E. Bourgeois. PASS, an alternative method of teaching introductory psychology. Research in Higher Education 8:3:273-82 '78. EJ 179 422.

The Programmed Achievement Study System (PASS), based on positively reinforcing attempts at mastery, was introduced and empirically tested to determine its validity. It makes use of traditional learning principles by providing rewards (bonus points) contingent upon reaching specified mastery criteria.

- *34. Okey, James R. Altering teacher and pupil behavior with mastery teaching. School Science and Mathematics 74:6:530-535 Oct'74. EJ 106 400.

This study's main purpose was to determine the effects a mastery teaching strategy would have on pupil achievement. A total of 21 teachers participated; results are reported for the subgroup of third and fourth grade teachers (n=5). Achievement of pupils favored the mastery group for each of the teachers.

- *35. Okey, James R. Consequences of training teachers to use a mastery learning strategy. Journal of Teacher Education 28:5:57-62 Sep/Oct '77. EJ 170 674.

Described is a project designed to produce materials fostering favorable teacher attitudes and acquisition of skills needed in using mastery learning in the classroom; in addition, effects on pupil attitudes and achievement are determined when teachers use mastery learning skills acquired during the training phase of the project.

- *36. Only one-third of children learning. Intellect 106:2390:8-9
Nov'77. EJ 176 852.

Almost all children can learn what the schools teach today, but, at present, only one-third of them do, says Benjamin S. Bloom. While the conventional system of group instruction is effective for some students and ineffective for others, he states that mastery learning enables all students to be educated together to the advantage of the students and their teachers.

37. Putt, Graeme D. Testing the mastery concept of self-paced learning in Physics. American Journal of Physics 45:5:472-475 My'77. EJ 161 006.

A comparative study with an established course in introductory physics presented according to traditional and Keller plan methods showed that many more students achieved mastery in a self-paced course.

- *38. Resnick, Lauren B. Assuming that everyone can learn everything, will some learn less? School Review 85:3:445-452 My'77. EJ 163 666.

A review essay of Benjamin Bloom's latest book Human Characteristics and School Learning. The author does not share Bloom's optimism that any child can learn anything taught in school, given enough time and quality teaching.

39. Richmond, L.R.S. Is mathematics ripe for mastery learning? Sask Mathematics Teachers' Society News/Journal 13:4:1-5 Sum'75.

- *40. Roueche, John E. Can mastery learning be humane? The case for performance-based instruction. Community College Review 3:1:14-21 Je'75. EJ 119 758.

Mastery learning has been called cold and impersonal. On the contrary, it is humane because it allows for individual differences, emphasizes each student's ability to master the subject at hand, and provides honest and open communication between students and instructors.

41. Sanderson, Herbert W. Student attitudes and willingness to spend time in unit mastery learning. Research in the Teaching of English 10:2:191-98 Aut'76. EJ 144 489.

- *42. Smith, Jeffrey K., and Michael Katims. Reading in the city: the Chicago mastery learning reading program. Phi Delta Kappan 59:3:199-202 Nov'77. EJ 167 840.

This program takes advantage of the mastery learning strategies, fits the Chicago reading curriculum, and keeps in mind the "facts of life" of urban education.

43. Sumner, Roy. "Mastery learning": an all or nothing? Research Intelligence 1:2:24-26 '75.
44. Wagner, John, and Howard Jones. Group-based instruction: the best chance for success? Two-Year College Mathematics Journal 4:1:51-54 W'73. EJ 071 811.

On the basis of research findings, it is suggested that flexible time scheduling and mastery learning strategies should be more widely applied at the college level.

45. Wentling, Tim. The utilization of mastery learning in vocational education: an empirical study. Journal of Industrial Teacher Education 10:4:36-45 Sum'73. EJ 081 550.
46. Yeazell, Mary I., et al. Self-pacing and procrastination in mastery learning. Educational Research and Methods 8:1:5-8 '75. EJ 139 977.

Studied were a self-paced section and a teacher-paced section of an undergraduate educational psychology course. By assessing number of trials to criterion, the investigators concluded that the self-paced method was more effective.

C. Theses

1. Davis, William J. The Mastery Learning and Conventional Modes of Instructing College-Level Composition: A Comparative Study Based Upon Selected Student Characteristics. Ed.D. dissertation, Oklahoma State University, 1975. 132 p. ED 120 789. Not available ERIC.

This study investigated the validity of the research methodology which sought to compare methods of instruction through the application of univariate statistical procedures, to contribute to the development of the theoretical position which contended that students of different abilities, needs, preferences, and attitudes should be differentially instructed, and to yield information which may be used

to counsel and guide students in their choices of instruction. Conventional and mastery methods of instruction were employed to instruct over 500 freshmen English composition students. It was found that there was no significant difference between the mastery learning and conventional modes of instruction; different "kinds" of students achieved different levels of "success" between the two modes of instruction; and the student was a significant variable in the instructional process, but not the major variable.

- **2. Decker, Dwight F. Teaching to Achieve Learning Mastery by Using Retesting Techniques. Ed.D. dissertation, Nova University, 1976. 105 p. Available ERIC. ED 133 002.

Vocational-technical students (n=92) and liberal arts students (n=156) were the subjects of a study conducted to evaluate the effectiveness of four instructional strategies intended to produce mastery. Strategies employed were: traditional instruction with no make-up exams; unlimited make-up exams with end of semester deadline; unlimited make-up exams with two-week deadline; and unlimited make-up exams with two-week deadline and with motivational help from an academic advisor. Vocational students were taught physics while liberal arts students were taught physical science. Effectiveness of each strategy was evaluated according to student achievement, further separated according to the IQ's of the students (high/low). Results of analysis indicated: (1) students with unlimited testing opportunities had better performance than those without such opportunities, in every case; (2) those with two-week deadlines performed better than those with end of semester deadlines; (3) students with advisor input generally performed better than those without advisor input; and (4) IQ was not a significant determinant of student performance.

- **3. Fagan, James Stephen. Mastery Learning: The Relationship of Mastery Procedures and Aptitude to the Achievement and Retention of Transportation-Environmental Concepts by Seventh Grade Students. Ed.D. dissertation, University of Georgia, 1975. 204 p. ED 120 036. Not available ERIC. Also presented as paper at annual meeting of American Educational Research Association (San Francisco, April 1976). 9 p. Available ERIC. ED 123 150.

Seventeen classes of seventh-grade geography students were taught an instructor-developed geography unit with either mastery or nonmastery procedures. The mastery procedures contained corrective feedback components which were omitted for the nonmastery classes.

The results indicated that there were no significant differences in either achievement or retention between mastery and nonmastery classes. Aptitude, as measured by a vocabulary test, correlated highly with unit achievement and retention regardless of the instruction strategy used. Therefore, verbal capability appears to be the overriding determinant of achievement or retention. Since mastery procedures normally require more time than nonmastery procedures and do not produce higher achievement levels, their use is questionable.

- **4. Freebury, John W. Reading Achievement Down, Discipline Problems Up: Reversing This Middle School Trend. Practicum for Ed.D., Nova University, 1978. 23 p. Available ERIC. ED 154 371.

Discipline records and reading test scores revealed that students in the Redding Middle School (Middletown, Delaware) were achieving low reading scores while the number of discipline referrals remained high. This report of a practicum project shows how the school's teachers and administrators succeeded in changing the direction of this trend, increasing reading achievement while reducing discipline referrals. School staff developed a master checklist of objectives, activities, and strategies to implement major changes in school organization, staff training, reading programs, and discipline programs. They applied Bloom's theory of mastery learning to improve student competency in reading through sequential instruction, assessment, and achievement feedback. Glasser's theory of reality therapy provided students and teachers with practical problem-solving strategies for dealing with potential discipline problems before administrative intervention. Summative evaluation data show a 20% reduction in referrals and a substantial increase in reading achievement scores (compared to students' reading scores in the four years preceding the project).

- **5. Jones, Frank Geoffrey. The Effects of Mastery and Aptitude on Learning, Retention and Time. Ed.D. dissertation, University of Georgia, 1974. 166 p. Available ERIC. ED 108 981.

The major purpose of this study was to compare self-instructional mastery and nonmastery treatments to determine if there are differences in learning, retention, and time-to-testing of high, middle, and low aptitude students.

6. Myers, Robert R. The Effects of Mastery and Aptitude on Achievement and Attitude in an Introductory College Geography Course. Ed.D. dissertation, University of Georgia, 1975. 195 p. ED 120 035. Not available ERIC.

A classroom lecture-discussion method was used to teach randomly selected students in a control class and a mastery-oriented class. Students in the mastery group were given the opportunity to attend tutorial sessions to be retaught the material that had not been answered correctly on formative tests. Findings indicate that there were no statistically significant differences between the control class and the mastery students in either achievement or attitude. However, the author believes that the tutorial sessions were more useful for low aptitude students.

BIBLIOGRAPHIES IN EDUCATION SERIES

<u>NO.</u>	<u>DATE</u>	<u>SUBJECT AND ERIC NUMBER</u>	<u>STATUS</u>	<u>ADDENDA</u>
1	June 1969	Pre-Service Teacher Education in Canada ED 034 726	(o/p)	Oct. 1971
2	June 1969	School Dropouts	(o/p)	Feb. 1971
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4	Nov. 1969	Computer Uses in Instructional Programs ED 034 728		
5	Dec. 1969	Microteaching ED 036 480	(o/p)	
6	Jan. 1970	Reporting to Parents	(o/p)	
7	Feb. 1970	Teacher Aides ED 037 406	included in No. 16	
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14	Nov. 1970	Histories of Teachers' Associations in Canada	(o/p)	
15	Dec. 1970	Differentiated Staffing ED 045 608	(o/p)	
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17	Jan. 1971	Open Area Schools	(o/p)	Dec. 1971
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30	Oct. 1972	Intercultural Education -- Indians and Eskimos of North America	(o/p)	
31	Dec. 1972	Community Schools ED 086 695		
32	Feb. 1973	Principals and Vice-Principals		
33	April 1973	Tenure ED 077 863		
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36	Sept. 1973	Differentiated Staffing		
37	Oct. 1973	Secondary Education		
38	Nov. 1973	Independent Study		
39	Dec. 1973	The Practicum in Teacher Education		
40	Jan. 1974	Microteaching		

<u>NO.</u>	<u>DATE</u>	<u>SUBJECT AND ERIC NUMBER</u>	<u>STATUS</u>	<u>ADDENDA</u>
41	Feb. 1974	Interaction Process Analysis		
42	Mar. 1974	Supervision		
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